

# Work Order ID 77245

**\*77245\***

Page 1

November-30-11 12:39:08 PM

Item ID: D205-634-041

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Replacement Skidtube

Start Date: 30/11/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 11/11/30

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D2580-041

Rev.E

100

0.00

**\*100\***

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

*N/A*

110

0.00

**\*110\***

BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

*MO*

*11-12-14*

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

*> MO/SW*

*11-12-14*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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**NOTE:** Date & initial all entries

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**\*1\***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start **\*NR1\***

QC: Date: SPC (Y/N): Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

0.00

**\*120\***

Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends and remove bending marks

2- Prepare tube for welding as per QSI 004

MO 11-12-16

130

QC5- Inspect part completeness to step on W/O

0.00

**\*130\***

QC

Memo

0.00

Quality Control

8 11/12/16

(41)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start **\*NR1\***

QC: Date: SPC (Y/N): Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

140

0.00

**\*140\***

Skidtubes

Skidtubes

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI004  
A/R Aluminum Rod

M119712

BE 11-12-16

2-Grind welds on step as per Dwg D2580

DP

3-Weld spacers as per dwg D2580

A/R M119712

BE 11-12-16

3- \*\*\* N/A \*\*\*\* Insert D4202-1 spacer, swage as per QSI002 and trim/ grind  
flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2  
x17G to start expansion and finish with 1/2 x-18G to achieve dwg dimention.4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64",  
adjust stopper not to hit web. Deburr

CF/

11-12-21

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

JC-Bore

DP 11-12-22

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC10- Inspect visual per QSI004- ground welds	0.00							
<b>*150*</b>									
QC	Memo	0.00							
Quality Control									
160	QC5- Inspect part completeness to step on W/O	0.00							
<b>*160*</b>									
QC	Memo	0.00							
Quality Control									
170	Pressure Wash per QSI005 4.3	0.00							
<b>*170*</b>									
HandFinish	Memo	0.00							
Hand Finishing	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.								

*Handwritten signature and date: 11/12/28*

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

180

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

**\*180\***

Powdercoat

Powder Coating

Memo

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

12-10 0.00  
3200 F  
12-40

12/01/02

190

QC3- Inspect Part Finish

0.00

**\*190\***

QC

Quality Control

Memo

0.00

1 BL 12-13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200		0.00							

**\*200\***

HandFinish

Hand Finishing

Memo

0.00

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates  
A/R Sikaflex-291 119508  
Sikaflex expire date: 12-8

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive  
A/R Sikaflex-291 119508  
Sikaflex expire date: 12-8

5-Wing Walk as per Dwg D2580 and QSI 005 4.4  
Batch: 119094

1 BR 12-1-4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Revision ID:

Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 30/11/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 16/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

210

QC5- Inspect part completeness to step on W/O

0.00

**\*210\***

QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

220

Packaging

0.00

**\*220\***

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD205-634-041

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

230

QC21- Final Inspection - Work Order Release

0.00

**\*230\***

QC

Memo

0.00

Quality Control

ME  
12-01-06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

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Page 1

Work Order ID: 77245

\*77245\*

Parent Item: D205-634-041

\*D205-634-041\*

Parent Item Name: Replacement Skidtube

Start Date: 30/11/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30  
KJ IPP Rev P 10.02.19  
per PAR09-043 EC verified by:DD  
IPP Rev. O 06.02.28 Added paperwork EC  
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q  
10.12.01 as per chg003 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1		Manufactured	No			140	Each	602.0000	20	20			

\*D4202-1\*  
Spacer

D2579

\*\*

BE11-12-16  
B77672 20

Location	Loc Qty	Loc Code
LG	110	
67129	0	
74651	110	
LG002	492	
66929	106	
67129	196	
67308	1	
67430	140	
72639	49	

D2580-1 Manufactured No

110 Each 10.0000 1 1

\*D2580-1\*

205 Skidtube bent detail

\*\*

Location	Loc Qty	Loc Code
LG	10	
72965	1	
76174	2	
76175	2	
76510	2	
76511	1	
76570	2	

① MD 11-12-14

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 2

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Parent Item: D205-634-041

**\*D205-634-041\***

Parent Item Name: Replacement Skidtube

Start Date: 30/11/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D2576-3 Manufactured No

140

Each

102.0000

1

1

**\*D2576-3\***

Step (maching detail)

**\*\***

*BE 11-12-16*

Location

Loc Qty

Loc Code

LG

102

66156

2

70883

50

74136

50

D2855 Manufactured No

200

Each

51.0000

1

1

**\*D2855\***

Cap

**\*\***

*BL 12-01-4*

Location

Loc Qty

Loc Code

FP002

49

73347 ✓

49

FP007

2

65519

2

AN3-5A Purchased No

200

Each

882.0000

2

2

**\*AN3-5A\***

Bolt

**\*\***

*BL 12-1-4*

Location

Loc Qty

Loc Code

ST350

882

115371

46

117423 ✓

336

118626

300

119355

200

AN960JD10L ~~✓~~ NAS1149D0332J Purchased No

200

Each

0.0000

2

2

**\*AN960JD10I \***

Washer

**\*\***

*118 389*

*2*

*BL 12-1-4*

November-30-11 12:39:13 PM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
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Parent Item Name: Replacement Skidtube

Start Date: 30/11/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

Purchased

No

200

Each

1,793.000

50

50

\*AI S7-1032-130\*

\*\*

Insert

\*ALS4-1032-130\*

Location

Loc Qty

Loc Code

ST280

119084

392

50

117717

27

118966

86

119775

279

ST281

221

119794

221

ST282

1180

119530

1180

AN3C4A

Purchased

No

200

Each

2,630.000

50

50

\*AN3C4A\*

\*\*

BOLT

Location

Loc Qty

Loc Code

ST350

2630

117313

2

117688

5

117872

10

118112

16

118451

2

118838 ✓

954

119328 ✓

641

119749

1000

AN960C10L

\*NAS1149C0332 R

✓ Purchased

No

200

Each

0.0000

50

50

\*AN960C10I \*

119736

\*\*

washer

~~50~~ 50 BL 12-1-4

W/O:		WORK ORDER CHANGES					
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Parent Item Name: Replacement Skidtube

Start Date: 30/11/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D3566-13

Manufactured No

200 Each

21.0000 1 1

**\*D3566-13\***

Gasket

\*\*

*BR 12-1-4.*

Location

Loc Qty

Loc Code

FP

20

73322 ✓

20

FP014

1

68341

1

D3566-5

Manufactured No

200 Each

21.0000 1 1

**\*D3566-5\***

Gasket

\*\*

*BR 12-1-4.*

Location

Loc Qty

Loc Code

FP002

21

75069 ✓

21

D3566-1

Manufactured No

200 Each

13.0000 2 2

**\*D3566-1\***

Gasket

\*\*

*BR 12-1-4.*

Location

Loc Qty

Loc Code

FP002

11

74518

11

FP015

2

68924

2

D3564-11

Manufactured No

200 Each

12.0000 1 1

**\*D3564-11\***

Wearshoe

\*\*

*BR 12-1-4.*

Location

Loc Qty

Loc Code

FP001

12

74705

12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Start Date: 30/11/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D3564-13

Manufactured No

200

Each

27.0000

1

1

**\*D3564-13\***

Wearshoe

**\*\***

*16 12-1-4.*

Location

Loc Qty

Loc Code

FP001

7

73323

7

FP002

19

75045 ✓

19

FP017

1

71594

1

D3564-9

Manufactured No

200

Each

21.0000

1

1

**\*D3564-9\***

Wearshoe

**\*\***

*14 12-1-4.*

Location

Loc Qty

Loc Code

FP

2

73345

2

FP001

14

75071 ✓

14

FP019

5

67590

4

69943

1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

November-30-11 12:39:13 PM

Page 6

Work Order ID: 77245

**\*77245\***

Parent Item: D205-634-041

**\*D205-634-041\***

Parent Item Name: Replacement Skidtube

Start Date: 30/11/2011

Required Date: 16/12/2011

Start Qty: 1.00

Required Qty: 1.00

D3564-5 Manufactured No 200 Each 35.0000 1 1

**\*D3564-5\***

Wearshoe

\*\*

BK 12-1-4

Location	Loc Qty	Loc Code
FG <del>76971</del>	2	
34806	2	
FP001	32	
74543	10	
76269 ✓	22	1
FP019	1	
73330	1	

D2594-3 Manufactured No 200 Each 592.0000 16 16

**\*D2594-3\***

O-Ring, 205 Skidtube

\*\*

BK 12-1-4

Location	Loc Qty	Loc Code
FP	394	
65518	41	
66952	55	
73490 ✓	298	16
FP004	198	
73490	198	

D2594-1 Manufactured No 200 Each 208.0000 16 16

**\*D2594-1\***

Plug, 205 Skidtube

\*\*

BK 12-1-4

Location	Loc Qty	Loc Code
FP-A <del>76075</del>	208	16
73401	30	
74442	178	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

LIST OF MATERIALS					
ITEM	QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
1	X			D2580-041	SKIDTUBE ASSEMBLY
2		X		D2580-045	SKIDTUBE ASSEMBLY
3			X	D2580-047	SKIDTUBE ASSEMBLY
4	1	1	1	D2500-1-190	EXTRUSION
5			16	D2570	BUSHING
6	1	1	1	D2576-3	STEP
7	20	24	25	D2579	SPACER
8	16	16	8	D2594-1	PLUG
9	16	16	8	D2594-3	O-RING
10	1	1	1	D2596	205 WEB
11	1	1	1	D2855	AFT CAP
12	1	1		D3564-5	WEARSHOE
13	1	1		D3564-9	WEARSHOE
14	1	1		D3564-11	WEARSHOE
15	1	1		D3564-13	WEARSHOE
16	2	2		D3566-1	GASKET
17	1	1		D3566-5	GASKET
18	1	1		D3566-13	GASKET
19			1	D4406-041	WEARPLATE ASSEMBLY
20			1	D4406-043	WEARPLATE ASSEMBLY
21	50	50		ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
22	50	50		AN3C4A	BOLT
23	2	2	2	AN3-5A	BOLT
24			8	AN4-45A	BOLT
25	50	50		NAS1149C0332R	WASHER (AN960C10L)
26	2	2	2	NAS1149D0332J	WASHER (AN960JD10L)
27			8	MS21042-4	NUT (OR MS21042L4)

# GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 34.5 lbs  
D2580-045 = 34.5 lbs  
D2580-047 = 37.7 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/-291.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

SHOP COPY  
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ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO 27245 J.L.J  
11/11/30

E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	#		
DRAWN	RF		
CHECKED	AP		
MFG. APPR.	AS		
APPROVED	AP		
DE APPR.	#		
DATE	11.06.21		
<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA DRAWING NO. REV. E D2580 SHEET 1 OF 8 TITLE SCALE 205 SKIDTUBE ASSEMBLY NTS <small>COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>			

RELEASED  
2011-08-29  
WJ

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

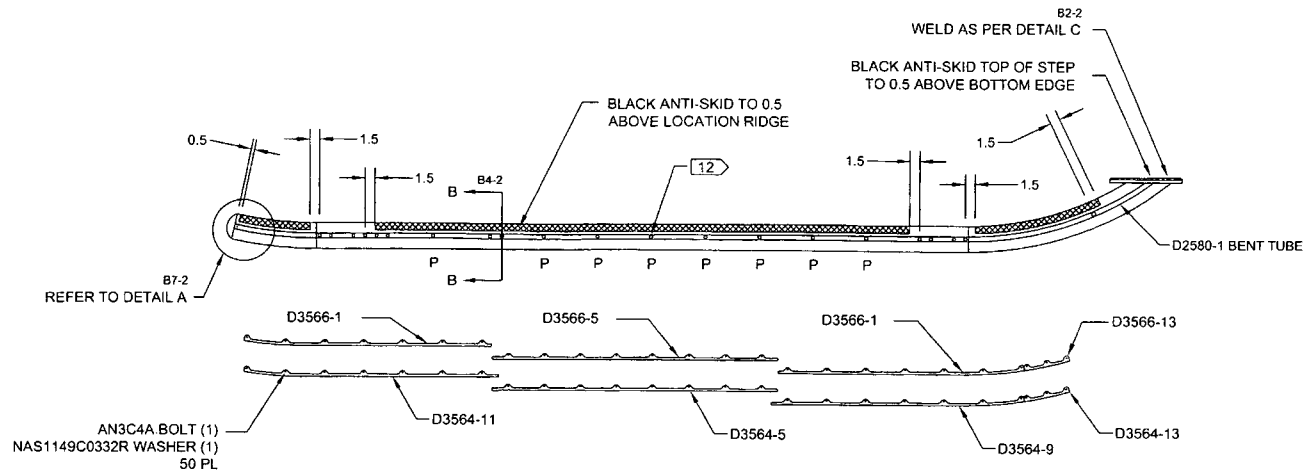
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

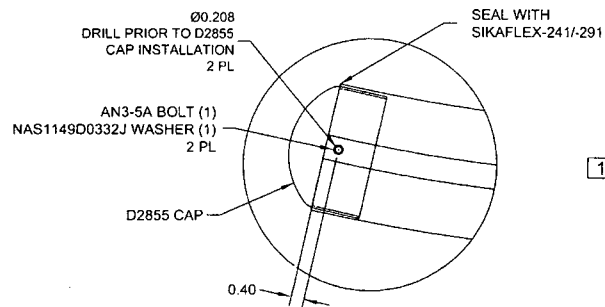
**NOTE:** Date & initial all entries

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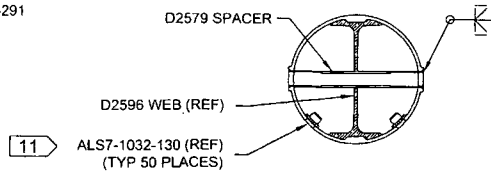


D2580-041 ASSEMBLY DETAIL

DETAIL A C7-2  
SCALE 5X

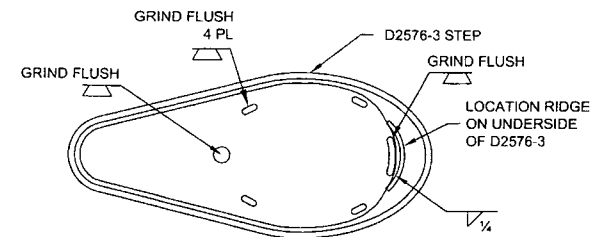


SECTION B-B D5-2  
SCALE 5X



- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (20 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DETAIL C D3-2  
SCALE 5X



DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. E
CHECKED	10	D2580	SHEET 2 OF 8
MFG. APPR.	10	TITLE	SCALE
APPROVED	10	205 SKIDTUBE ASSEMBLY	NTS
DE APPR.	10	COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	11.06.21		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

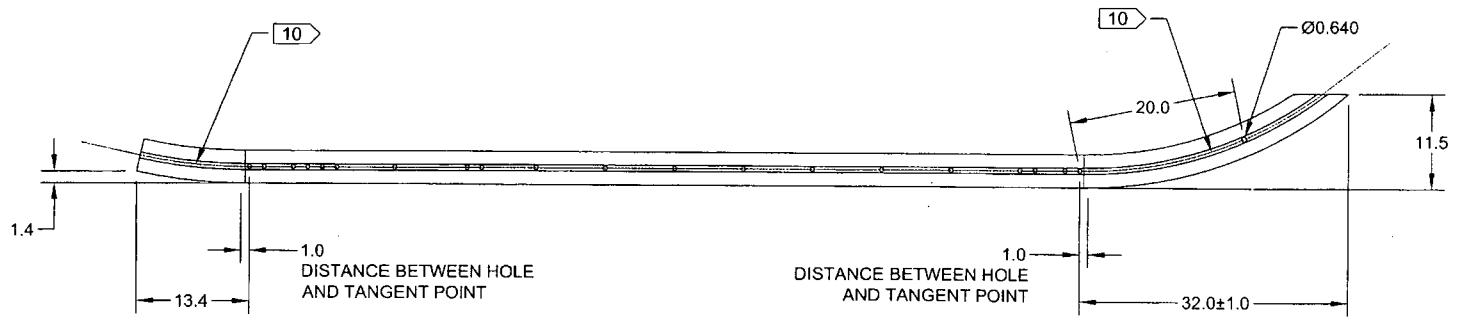
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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D2580-1 BENT TUBE  
(MAKE FROM D2580-101 TUBE)

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2011-08-28

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D2580	SHEET 3 OF 8
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

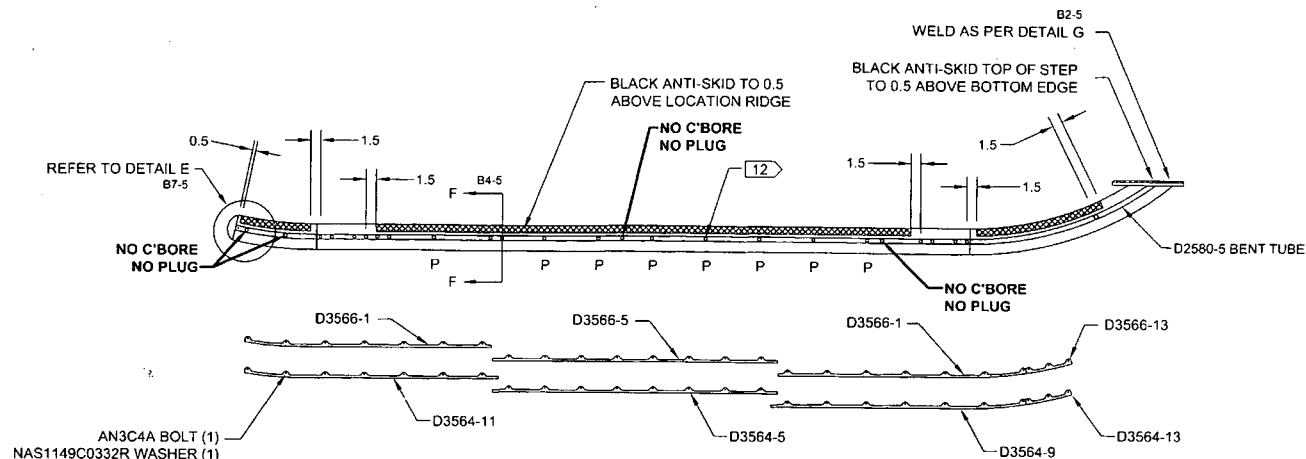
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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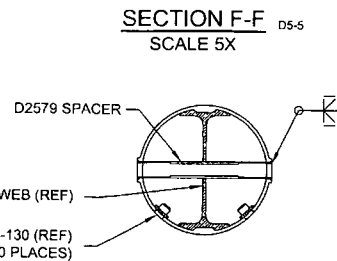
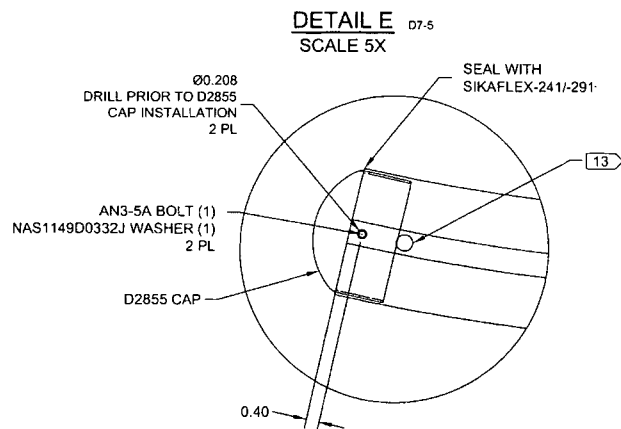
**NOTE:** Date & initial all entries



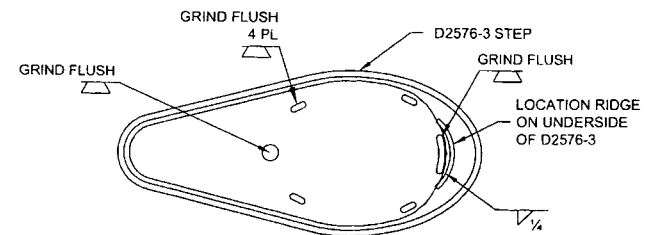
77245



D2580-045 ASSEMBLY DETAIL



- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (24 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP



RELEASED  
R 2011-08-29  
MD

DESIGN	#	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 4 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	#	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

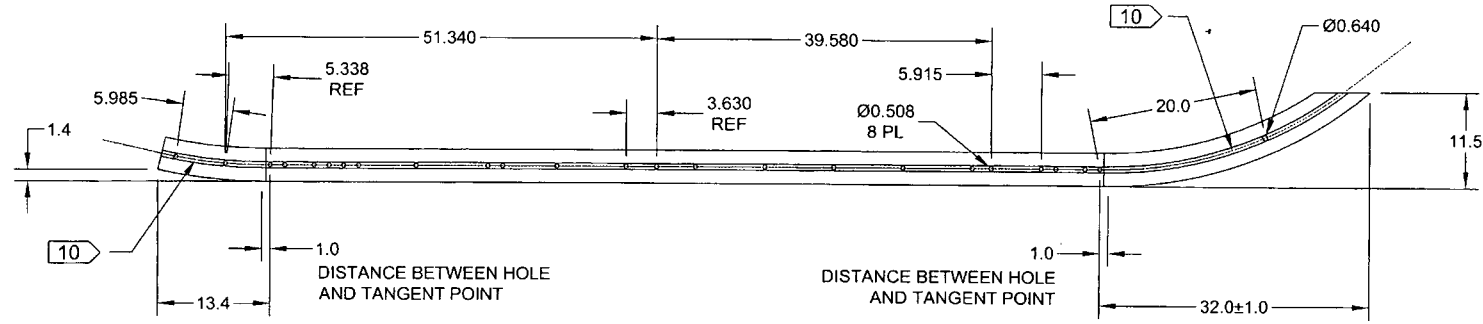
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

77245



**D2580-5 BENT TUBE**  
(MAKE FROM D2580-101 TUBE)

**RELEASED**  
2011-08-29

DESIGN	RF	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D2580	SHEET 5 OF 8
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
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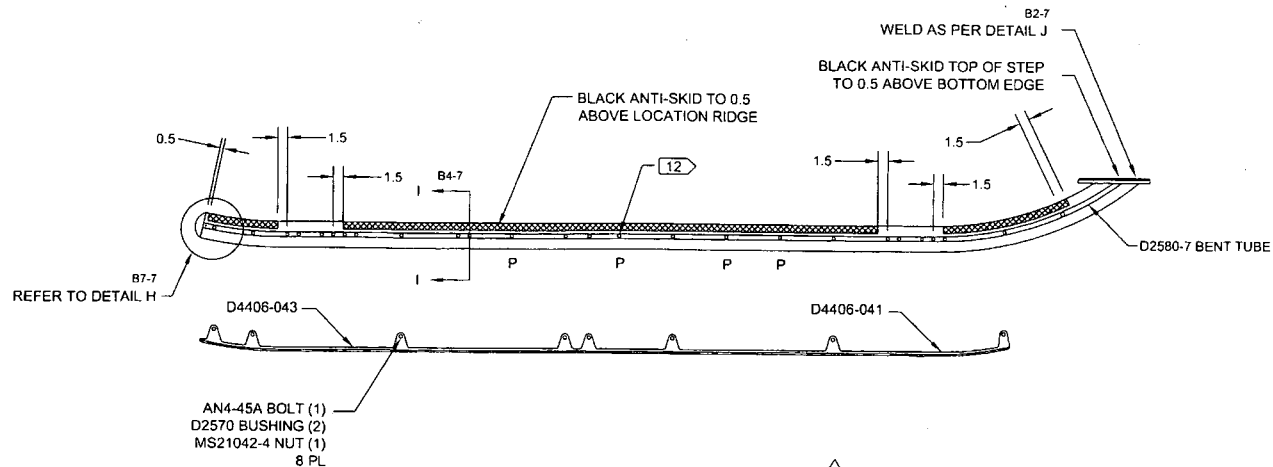
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

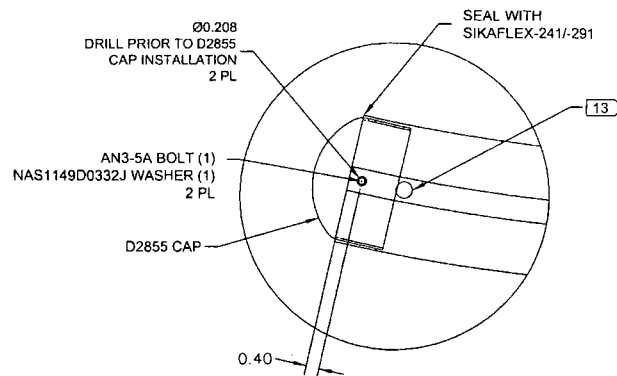
**NOTE:** Date & initial all entries

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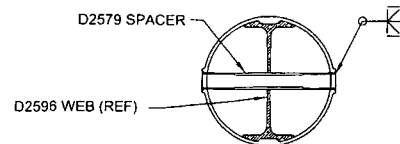


D2580-047 ASSEMBLY DETAIL E

DETAIL H C6-7  
SCALE 5X

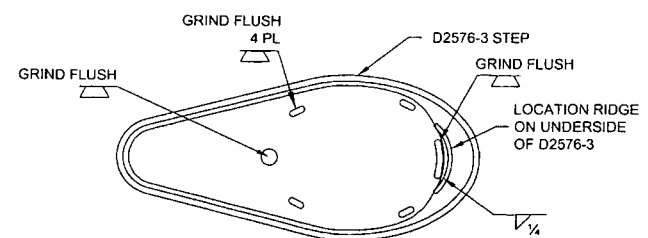


SECTION I-I D5-7  
SCALE 5X



- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (25 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DETAIL J D3-7  
SCALE 5X



RELEASED  
2011-08-29

DESIGN	<del>RF</del>	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<del>AP</del>	DRAWING NO.	REV. E
MFG. APPR.	<del>AP</del>	D2580	SHEET 6 OF 8
APPROVED	<del>AP</del>	TITLE	SCALE
DE APPR.	<del>AP</del>	205 SKIDTUBE ASSEMBLY	NTS
DATE	11.06.21	COPYRIGHT © 1996 BY DART AEROSPACE LTD	
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W/O:		WORK ORDER CHANGES					
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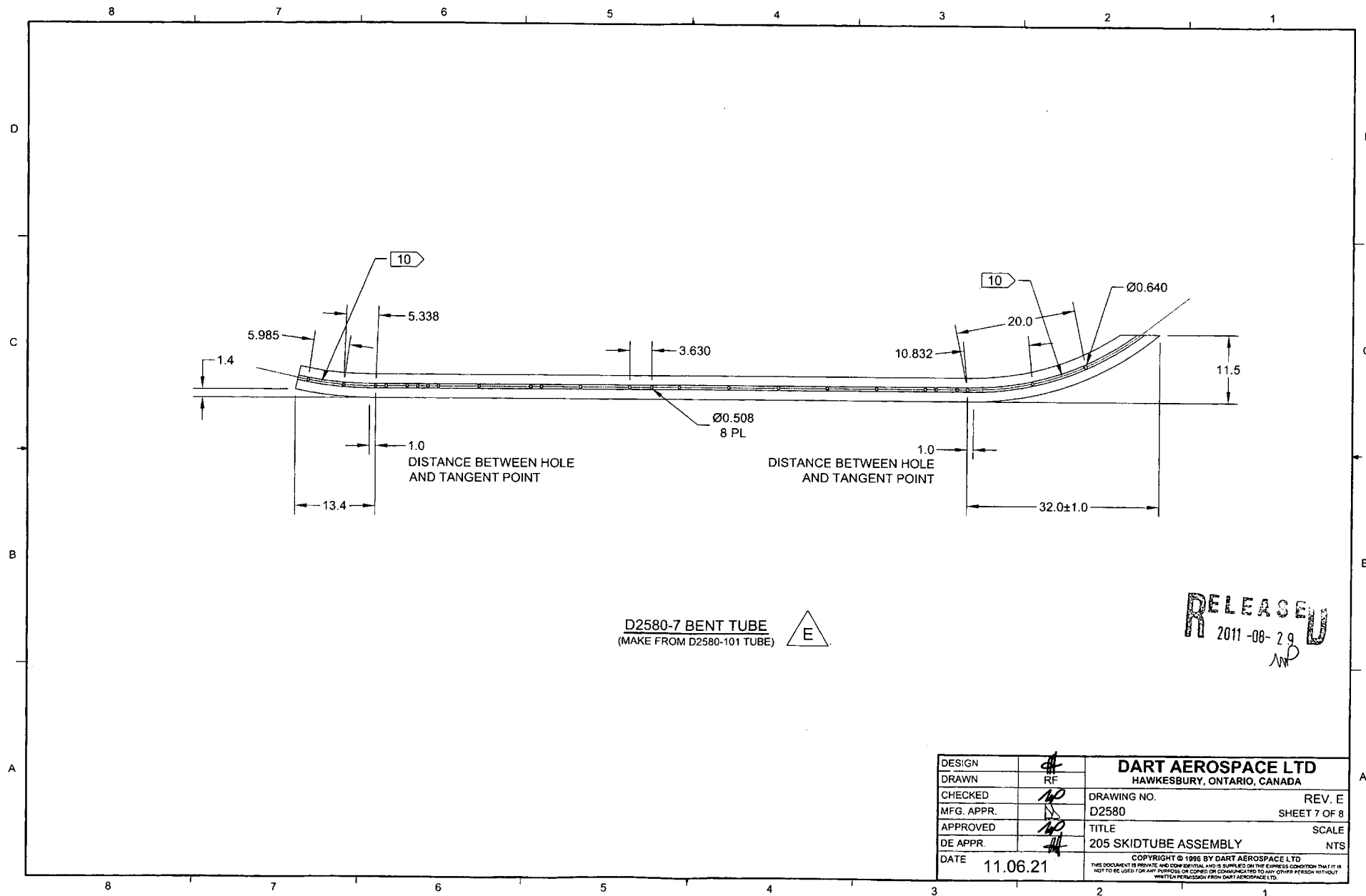
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

77245



D2580-7 BENT TUBE  
(MAKE FROM D2580-101 TUBE)



RELEASED  
2011-08-29  
JW

DESIGN	RF	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D2580	SHEET 7 OF 8
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

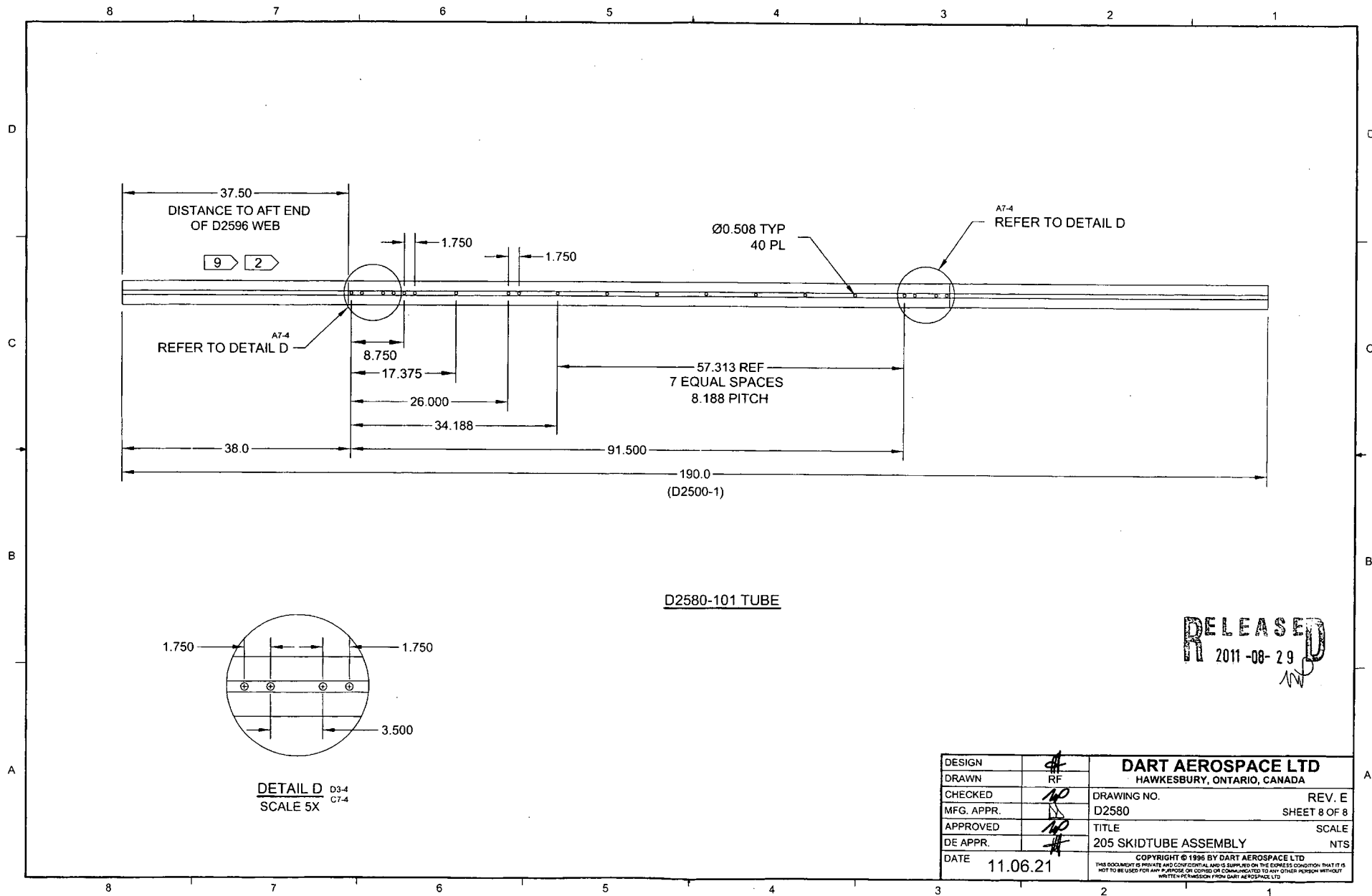
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



77245



DESIGN	#	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 8 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	#	205 SKIDTUBE ASSEMBLY	NTS
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

NO. 275

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliot  
Job number: 76550  
Part number: 205-634-041  
Description: Skid Tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: Alum  
Current: AC[☒] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[ ]  
Penetration: pass[☒] fail[ ]

UNACCEPTABLE

Cracks: pass[☒] fail[ ]  
Undercut: pass[☒] fail[ ]  
Pin holes: pass[☒] fail[ ]  
Overlap (cold lap): pass[☒] fail[ ]  
Porosity (surface): pass[☒] fail[ ]  
Coloration: pass[☒] fail[ ]

Qualifier David Smith Date of Test Coupon 11.11.22  
Welder Barclay Elliot Date of Test Coupon 11.11.22

The above named individual is qualified in accordance with AWS D17.1.2001 to weld